Section 3

Interactions Among Living Things

Objectives

After this lesson, students will be able to

E.1.3.1 Explain how an organism's adaptations help it survive.

E.1.3.2 Describe the major kinds of interaction among organisms in an ecosystem.

E.1.3.3 Identify the three types of symbiotic relationships.

Target Reading Skill

Using Prior Knowledge Explain that using prior knowledge helps students connect what they already know to what they are about to read.

Answers

Possible answers:

What You Know

1. Organisms interact in different ways.

What You Learned

1. Organisms are adapted to their environments.

2. Organisms have niches, which are their roles in their habitats.

3. Organisms compete for resources. Some organisms eat others, and this affects the size of populations.

4. Some organisms live together in symbiotic relationships, of which there is mutualism (both benefit), commensalism (one benefits, the other is not helped or harmed), and parasitism (one benefits, the other is harmed).

All in One Teaching Resources

- Transparency E6

Preteach

Build Background Knowledge

L1

Identifying Adaptations

Ask: **What features enable fish to survive in an underwater environment?** *(Students most likely will mention fins and tails for moving through the water and gills for breathing oxygen dissolved in the water.)* Encourage students to think of other examples of how organisms are adapted to their environments.

Section 3

Interactions Among Living Things

Reading Preview

Key Concepts

- How do an organism's adaptations help it to survive?
- What are the major ways in which organisms in an ecosystem interact?
- What are the three types of symbiotic relationships?

Key Terms

- natural selection
- adaptations • niche
- competition • predation
- predator • prey • symbiosis
- mutualism • commensalism
- parasitism • parasite • host

Target Reading Skill

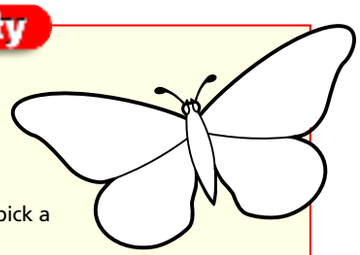
Using Prior Knowledge Before you read, look at the section headings and visuals to see what this section is about. Then write what you know about how living things interact in a graphic organizer like the one below. As you read, continue to write in what you learn.

What You Know
1. Organisms interact in different ways. 2.

What You Learned
1. 2.

Lab zone Discover Activity

Can You Hide a Butterfly?



1. Trace a butterfly on a piece of paper, using the outline shown here.
2. Look around the classroom and pick a spot where you will place your butterfly. You must place your butterfly out in the open. Color your butterfly so it will blend in with the spot you choose.
3. Tape your butterfly down. Someone will now have one minute to find the butterflies. Will your butterfly be found?

Think It Over

Predicting Over time, do you think the population size of butterflies that blend in with their surroundings would increase or decrease?

Can you imagine living in a cactus like the one in Figure 12? Ouch! You probably wouldn't want to live in a house covered with sharp spines. But many species live in, on, and around saguaro cactuses.

As day breaks, a twittering sound comes from a nest tucked in one of the saguaro's arms. Two young red-tailed hawks are preparing to fly for the first time. Farther down the stem, a tiny elf owl peeks out of its nest in a small hole. This owl is so small it could fit in your palm! A rattlesnake slithers around the base of the saguaro, looking for lunch. Spying a shrew, the snake strikes it with its needle-like fangs. The shrew dies instantly.

Activity around the saguaro continues after sunset. Long-nosed bats come out to feed on the nectar from the saguaro's blossoms. The bats stick their faces into the flowers to feed, dusting their long snouts with white pollen. As they move from plant to plant, they carry the pollen to other saguaros. This enables the cactuses to reproduce.

Lab zone Discover Activity

Skills Focus Predicting L1

Materials Sheet of white paper, colored pencils or markers, tape

Time 15 minutes

Tips Tell students that the butterflies do not have to be colored realistically. Arrange to have another staff member or a student from another class look for the butterflies.

Expected Outcome Butterflies whose colors and patterns closely match their background will be most difficult to see.

Think It Over Butterflies that blend well with their surroundings will escape predators and survive to reproduce, thus increasing the population.

Adapting to the Environment

Each organism in the saguaro community has unique characteristics. These characteristics affect the individual's ability to survive in its environment.

Natural Selection A characteristic that makes an individual better suited to its environment may eventually become common in that species through a process called **natural selection.** Natural selection works like this: Individuals whose unique characteristics are best suited for their environment tend to survive and produce offspring. Offspring that inherit these characteristics also live to reproduce. In this way, natural selection results in **adaptations,** the behaviors and physical characteristics that allow organisms to live successfully in their environments.

Individuals with characteristics that are poorly suited to the environment are less likely to survive and reproduce. Over time, poorly suited characteristics may disappear from the species.

Niche **Every organism has a variety of adaptations that are suited to its specific living conditions.** The organisms in the saguaro community have adaptations that result in specific roles. The role of an organism in its habitat, or how it makes its living, is called its **niche.** A niche includes the type of food the organism eats, how it obtains this food, and which other organisms use the organism as food. A niche also includes when and how the organism reproduces and the physical conditions it requires to survive.

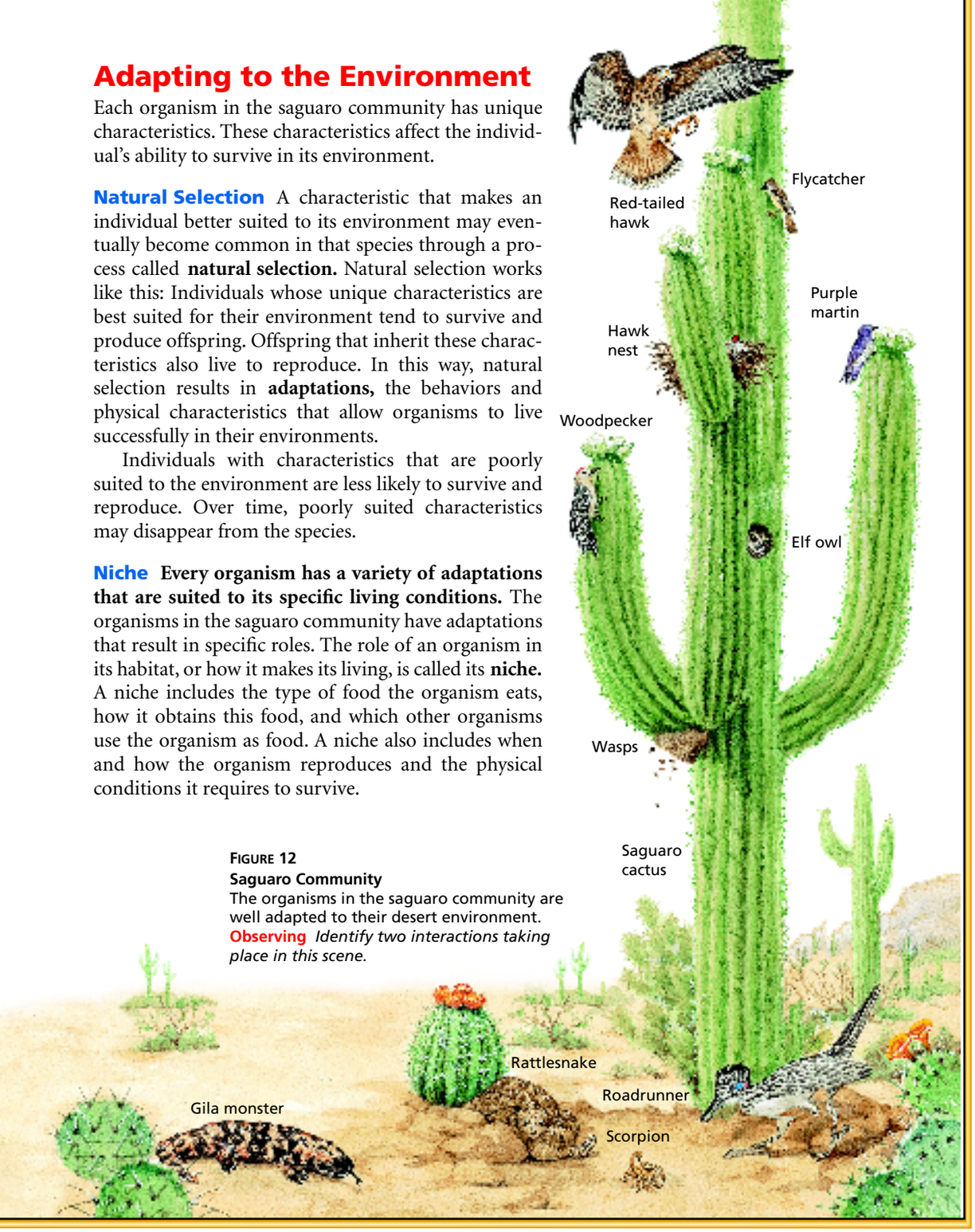


FIGURE 12
Saguaro Community
The organisms in the saguaro community are well adapted to their desert environment.
Observing *Identify two interactions taking place in this scene.*

Differentiated Instruction

English Learners/Beginning L1
Comprehension: Link to Visual Use Figure 12 to help students understand the meaning of *adaptations.* Point to an organism and ask: How does this [name organism] live? What body parts or behaviors does it have that enable it to do these tasks? How does each help the organism survive? **learning modality: visual**

English Learners/Intermediate L2
Comprehension: Link to Visual Have each student make a two-column chart. Tell them to choose an organism from Figure 12. In the first column of the chart they should list the organism's adaptations. In the second column they should tell how each adaptation helps the organism survive. **learning modality: logical/mathematical**

Instruct

Adapting to the Environment

Teach Key Concepts L2

Describing Niches

Focus Have students note the organisms living in the community shown in Figure 12. Ask: **Give examples of how the roles of these organisms differ in the community.** *(Possible answer: The hawk preys on other animals. The cactus makes food that stores energy, which other organisms can use.)*

Teach Ask: **What are adaptations?** *(The characteristics that enable each organism to survive in its niche)*

Apply Ask: **What is the niche of the rattlesnake?** *(Possible answer: It lives on the ground where it preys on small animals, uses oxygen, releases carbon dioxide, and is prey for the hawk.)* **learning modality: verbal**

Address Misconceptions L2

Changes Within Species

Focus Emphasize that the changes within a species are not deliberate or conscious.

Teach Explain that organisms do not decide to develop characteristics that enable them to survive more successfully. Also point out that individuals do not develop new characteristics within their own lifetimes, but species change over time.

Apply Ask: **If a squirrel gives birth to two offspring, one that can run much faster than the other, which offspring is more likely to pass its traits on to its offspring? Why?** *(The faster squirrel is more likely to escape predators and survive to produce offspring with the same trait.)* **learning modality: logical/mathematical**

Independent Practice

All in One Teaching Resources

- Guided Review and Study Worksheet: *Interactions Among Living Things*

Student Edition Audio CD

Monitor Progress L2

Answers

Figure 12 Possible answer: Owl nesting in cactus; woodpecker eating insects

Competition

Teach Key Concepts L2

Limited Resources

Focus Remind students that in any community, organisms interact.

Teach Tell students that in a community, there is a limited amount of some resources. Ask: **What happens when more than one species requires the same limited resource?** *(Competition)* Refer students to Figure 13, and point out that each bird species feeds in a different part of the tree. Ask: **What advantage is this for the three birds?** *(The three species do not compete with each other for the same food and space.)*

Apply Ask: **For what resources do the tree and the grass in Figure 13 compete?** *(Sunlight, water, minerals, space)* **learning modality: visual**

All in One Teaching Resources L2

- Transparency E7

Lab zone Build Inquiry

Observing Cricket Competition L3

Materials several male crickets (from a pet store), terrarium, soil, materials to provide hiding places (rocks, leaves, pieces of bark, small branches), paint of different colors

Time 15 minutes for setup

Focus Ask students what they know about crickets.

Teach Tell students that male crickets compete for territories. Have volunteers set up a cricket habitat in a terrarium. Tell them to cover the bottom of the terrarium with soil and then add several items under which the crickets can hide. Before students place the crickets in the terrarium, have them mark each cricket's back with a different color dot of paint for identification. Caution students to handle the crickets carefully and wash their hands afterward. When the crickets are first introduced into the terrarium, they will fight. In time, each will establish its own territory, remain in it most of the time, and defend it against other males. After the activity, you can release the crickets.

Apply Ask: **What is the advantage of having a territory?** *(It reduces competition.)* **learning modality: visual**

FIGURE 13
Niche and Competition
Each of these warblers occupies a different niche in its spruce tree habitat. By feeding in different areas of the tree, the birds avoid competing for food.
Comparing and Contrasting
How do the niches of these three warblers differ?

Competition

During a typical day in the saguaro community, a range of interactions takes place among organisms. **There are three major types of interactions among organisms: competition, predation, and symbiosis.**

Different species can share the same habitat and food requirements. For example, the roadrunner and the elf owl both live on the saguaro and eat insects. However, these two species do not occupy exactly the same niche. The roadrunner is active during the day, while the owl is active mostly at night. If two species occupy the same niche, one of the species will eventually die off. The reason for this is **competition,** the struggle between organisms to survive as they attempt to use the same limited resource.

In any ecosystem, there is a limited amount of food, water, and shelter. Organisms that survive have adaptations that enable them to reduce competition. For example, the three species of warblers in Figure 13 live in the same spruce forest habitat. They all eat insects that live in the spruce trees. How do these birds avoid competing for the limited insect supply? Each warbler "specializes" in feeding in a certain part of a spruce tree. This is how the three species coexist.

Reading Checkpoint **Why can't two species occupy the same niche?**

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For: More on population interactions
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Students can review population interactions in an online interactivity.

Predation

A tiger shark lurks below the surface of the clear blue water, looking for shadows of albatross chicks floating above. The shark spots a chick and silently swims closer. Suddenly, the shark bursts through the water and seizes the albatross with one snap of its powerful jaw. This interaction between two organisms has an unfortunate ending for the albatross.

An interaction in which one organism kills another for food is called **predation.** The organism that does the killing, in this case the tiger shark, is the **predator.** The organism that is killed, in this case the albatross, is the **prey.**

The Effect of Predation on Population Size Predation can have a major effect on the size of a population. Recall from Section 2 that when the death rate exceeds the birth rate in a population, the size of that population usually decreases. So if there are many predators, the result is often a decrease in the size of the population of their prey. But a decrease in the number of prey results in less food for their predators. Without adequate food, the predator population starts to decline. So, generally, populations of predators and their prey rise and fall in related cycles.

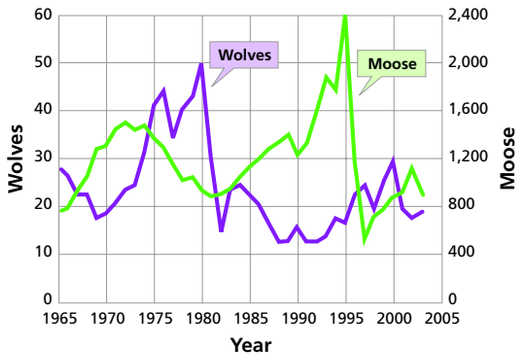
FIGURE 14
Predation
This green tree python and mouse are involved in a predator-prey interaction.

Math Analyzing Data

Predator-Prey Interactions

On Isle Royale, an island in Lake Superior, the populations of wolves (the predator) and moose (the prey) rise and fall in cycles. Use the graph to answer the questions.

Wolf and Moose Populations on Isle Royale



1. **Reading Graphs** What variable is plotted on the *x*-axis? What two variables are plotted on the *y*-axis?
2. **Interpreting Data** How did the moose population change between 1965 and 1972? What happened to the wolf population from 1973 through 1976?
3. **Inferring** How might the change in the moose population have led to the change in the wolf population?
4. **Drawing Conclusions** What is one likely cause of the dip in the moose population between 1974 and 1981?
5. **Predicting** How might a disease in the wolf population one year affect the moose population the next year?

Predation

Teach Key Concepts L2

Predation in a Terrarium

Focus Have students visualize a cricket habitat set up in a terrarium.

Teach Ask: **What would happen if you added a toad to the habitat?** *(It would eat the crickets.)* **What would happen if you then added a snake?** *(It would eat the toad.)* **Which of these animals would be prey?** *(The crickets are prey for the toad, and the toad is prey for the snake.)* **Which would be a predator?** *(The toad is a predator of crickets, and the snake is a predator of toads.)*

Apply Challenge students to identify other feeding relationships in which one organism is both predator and prey. **learning modality: logical/mathematical**

Math Analyzing Data

Math Skill Making and interpreting graphs

Focus Remind students that without enough prey, a predator population declines.

Teach Direct attention to the graph. Ask: **What does the *x*-axis show?** *(The years from 1965 to 2000)* **The *y*-axis?** *(The population of wolves and moose)* **What are the wolf and moose populations in 1970?** *(Wolves, 18; moose, 1,300)*

Answers

1. Year; numbers of wolves and moose
2. The moose population increased and then decreased; the wolf population increased.
3. As the moose population increased, more food was available to the wolf population and it increased.
4. The wolf population increased.
5. Disease would cause a decrease in the wolf population, so fewer moose would be eaten and the population could increase.

Monitor Progress L2

Oral Presentation Present students with various predator-prey pairs. Have them identify the predator and prey in each.

Answers

Figure 13 Each species feeds at a different location on the tree

Reading Checkpoint If two species occupy the same niche, they will compete directly against each other and one species will eventually die off.

Lab zone **Build Inquiry** L2

Observing an Insect-Eating Plant

Materials sundew or Venus's fly-trap, cooked ground beef, tweezers

Time 5 minutes a day for several days

Focus Review with students the definitions of *predator* and *prey.*

Teach Have students take turns feeding the plant small pieces of the ground beef from time to time. (**CAUTION:** *Remind students to wash their hands afterward.*) Ask: **What did you observe after you fed the meat to the plant?** *(The plant's leaf blades snapped closed, trapping the meat.)* **What did you notice when the leaves opened again?** *(The meat was gone.)* Explain that the plant produces enzymes that digest the meat. Explain that carnivorous plants living in the wild capture and digest live insects and other small organisms.

Apply Tell students that many carnivorous plants live in areas with poor soil. Ask: **How does this adaptation enable carnivorous plants to survive in areas of poor soil?** *(The plant can get the nutrients it needs from the digested insects.)* **learning modality: visual**

Populations and Communities

Show the Video Field Trip to help students understand the predator–prey relationship. Discussion question: **What makes the cheetah a successful predator?** *(It can run faster over short distances than any other land animal.)*

FIGURE 15
Predator Adaptations
This greater horseshoe bat has adaptations that allow it to find prey in the dark. The bat produces pulses of sound and locates prey by interpreting the echoes.
Inferring *What other adaptations might contribute to the bat's success as a predator?*

Predator Adaptations Predators have adaptations that help them catch and kill their prey. For example, a cheetah can run very fast for a short time, enabling it to catch its prey. A jellyfish's tentacles contain a poisonous substance that paralyzes tiny water animals. Some plants, too, have adaptations for catching prey. The sundew is covered with sticky bulbs on stalks—when a fly lands on the plant, it remains snared in the sticky goo while the plant digests it.

Some predators have adaptations that enable them to hunt at night. For example, the big eyes of an owl let in as much light as possible to help it see in the dark. Insect-eating bats can hunt without seeing at all. Instead, they locate their prey by producing pulses of sound and listening for the echoes. This precise method enables a bat to catch a flying moth in complete darkness.

Discovery CHANNEL SCHOOL
Populations and Communities
Video Preview
▶ Video Field Trip
Video Assessment

Prey Adaptations How do organisms avoid being killed by such effective predators? Organisms have many kinds of adaptations that help them avoid becoming prey. The alertness and speed of an antelope help protect it from its predators. And you're probably not surprised that the smelly spray of a skunk helps keep its predators at a distance. As you can see in Figure 16, other organisms also have some very effective ways to avoid becoming a predator's next meal.

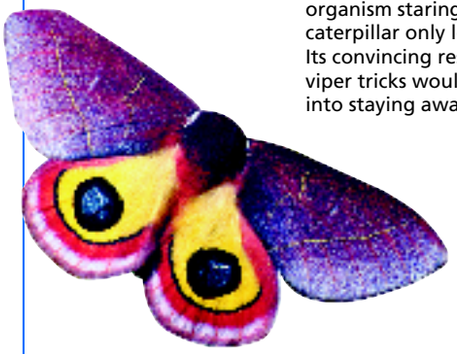
Reading Checkpoint **What are two predator adaptations?**

FIGURE 16

Defense Strategies

Organisms display a wide array of adaptations that help them avoid becoming prey.

Mimicry ▶
If you're afraid of snakes, you'd probably be terrified to see this organism staring at you. But this caterpillar only looks like a snake. Its convincing resemblance to a viper tricks would-be predators into staying away.

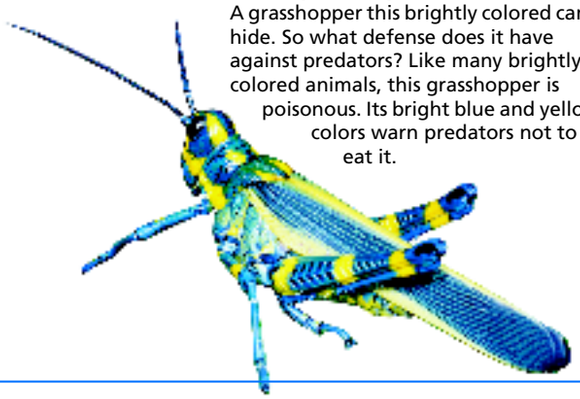


False Coloring ▲
If you saw this moth in a dark forest, you might think you were looking into the eyes of a large mammal. The large false eyespots on the moth's wings scare potential predators away.

Protective Covering ▼
Have you ever seen a pine cone with a face? This organism is actually a pangolin, a small African mammal. When threatened, the pangolin protects itself by rolling up into a scaly ball.

Camouflage ▲
Is it a leaf? Actually, it's a walking leaf insect, but if you were a predator, you might be fooled into looking elsewhere for a meal.

▼ **Warning Coloring**
A grasshopper this brightly colored can't hide. So what defense does it have against predators? Like many brightly colored animals, this grasshopper is poisonous. Its bright blue and yellow colors warn predators not to eat it.



Use Visuals: Figure 16 L2

Identifying Defense Strategies

Focus Remind students that prey have a variety of adaptations to avoid predators.

Teach Have students look at each defense strategy. Discuss how each strategy helps protect the animal. Then ask: **What kind of defense strategy does a poison ivy plant have?** *(Chemical defense)* **What is an example of an animal using a chemical defense?** *(Students might mention a skunk spraying.)* **How does this defense help a skunk survive?** *(The foul odor repels predators that try to attack the skunk; predators that have been sprayed by a skunk will avoid skunks in the future.)*

Apply Ask students to describe other examples of each type of defense strategy shown in the pictures. **learning modality: verbal**

Monitor Progress L2

Writing Have students write a paragraph that identifies and describes a defense strategy used by prey. Students can place their paragraphs in their portfolios.

Portfolio

Answers

Figure 15 The bat's ears pick up echoes, which the bat uses to locate prey. The bat is quick, and it has teeth.

Reading Checkpoint Possible answers: Some can run fast; some produce poisons to paralyze or kill prey, some can see at night, some produce sound waves and interpret echoes.

Symbiosis

Teach Key Concepts L2

Identifying Relationships

Focus Have students look at Figure 17 and read the caption. Ask: **Why are these birds sitting on the hippo?** *(To feed and to hitch a ride)*

Teach Tell students that the birds and the hippo have a symbiotic relationship. Ask: **What are three types of symbiosis?** *(Mutualism, commensalism, parasitism)* Explain that this type of symbiotic relationship is mutualism. Ask: **How do the birds benefit?** *(They get food.)* **How does the hippo benefit?** *(The birds eat the ticks that feed on the hippo's blood.)*

Apply Ask: **What type of relationship do the tick and the hippo have?** *(A parasitic relationship)* **Which animal is the parasite?** *(The tick)* **learning modality: visual**

Integrating Health

Students are probably unaware that their own bodies are inhabited by other living things. Tell students that microscopic mites (*Demodex folliculorum*) live at the base of eyelashes, where they feed on tiny bits of dead skin and other detritus. Ask: **What type of symbiotic relationship is this? Explain your answer.** *(Commensalism because the mites benefit and human are neither harmed nor helped)* **learning modality: verbal**

Lab zone Skills Activity

Classifying

Classify each interaction as an example of mutualism, commensalism, or parasitism. Explain your answers.

- A remora fish attaches itself to the underside of a shark without harming the shark, and eats left-over bits of food from the shark's meals.
- A vampire bat drinks the blood of horses.
- Bacteria living in cows' stomachs help them break down the cellulose in grass.

Symbiosis

Many of the interactions in the saguaro community you read about are examples of symbiosis. **Symbiosis** (sim bee OH sis) is a close relationship between two species that benefits at least one of the species. **The three types of symbiotic relationships are mutualism, commensalism, and parasitism.**

Mutualism A relationship in which both species benefit is called **mutualism** (MYOO choo uh liz um). The relationship between the saguaro and the long-eared bats is an example of mutualism. The bats benefit because the cactus flowers provide them with food. The saguaro benefits as its pollen is carried to another plant on the bat's nose.

In some cases of mutualism, two species are so dependent on each other that neither could live without the other. This is true for some species of acacia trees and stinging ants in Central and South America. The stinging ants nest only in the acacia tree, whose thorns discourage the ants' predators. The tree also provides the ants' only food. The ants, in turn, attack other animals that approach the tree and clear competing plants away from the base of the tree. To survive, each species needs the other.

Commensalism A relationship in which one species benefits and the other species is neither helped nor harmed is called **commensalism** (kuh MEN suh liz um). The red-tailed hawks' interaction with the saguaro is an example of commensalism. The hawks benefit by having a place to build their nest, while the cactus is not affected by the hawks.

Commensalism is not very common in nature because two species are usually either helped or harmed a little by any interaction. For example, by creating a small hole for its nest in the cactus stem, the elf owl slightly damages the cactus.

FIGURE 17
Mutualism
Three yellow-billed oxpeckers get a cruise and a snack aboard an obliging hippopotamus. The oxpeckers eat ticks living on the hippo's skin. Since both the birds and the hippo benefit from this interaction, it is an example of mutualism.

Lab zone Skills Activity

Skills Focus Classifying

Materials none

Time 10 minutes

Expected Outcome Remora/shark—commensalism; the remora benefits. Vampire bat/horses—parasitism; the bat benefits, and the horses are harmed. Bacteria/cows— mutualism; the bacteria receive food and a place to live, and the bacteria help the cows digest their food.

L1 **Extend** Have students classify the relationships between: clown fish and anemones (commensalism—the clown fish receives protection); termites and gut protozoa (mutualism—the protozoa enable the termites to digest wood, and the termites provide shelter and food); dogs and heartworms (parasitism). **learning modality: logical/mathematical**

Parasitism **Parasitism** (PA ruh sit iz um) involves one organism living on or inside another organism and harming it. The organism that benefits is called a **parasite,** and the organism it lives on or in is called a **host.** The parasite is usually smaller than the host. In a parasitic relationship, the parasite benefits from the interaction while the host is harmed.

Some common parasites are fleas, ticks, and leeches. These parasites have adaptations that enable them to attach to their host and feed on its blood. Other parasites live inside the host's body, such as tapeworms that live inside the digestive systems of dogs, wolves, and some other mammals.

Unlike a predator, a parasite does not usually kill the organism it feeds on. If the host dies, the parasite loses its source of food. An interesting example of this rule is shown by a species of mite that lives in the ears of moths. The mites almost always live in just one of the moth's ears. If they live in both ears, the moth's hearing is so badly affected that it is likely to be quickly caught and eaten by its predator, a bat.

Reading Checkpoint **Why doesn't a parasite usually kill its host?**

FIGURE 18
Parasitism
This tick is feeding on a person's blood. **Classifying** *Which organism in this interaction is the parasite? Which organism is the host?*

Section 3 Assessment

Target Reading Skill **Using Prior Knowledge** Review your graphic organizer and revise it based on what you just learned in the section.

Reviewing Key Concepts

1. **a.** **Defining** What are adaptations?
   b. **Explaining** How are a snake's sharp fangs an adaptation that helps it survive in the saguaro community?
   c. **Developing Hypotheses** Explain how natural selection in snakes might have led to adaptations such as sharp fangs.
2. **a.** **Reviewing** What are three main ways in which organisms interact?
   b. **Classifying** Give one example of each type of interaction.
3. **a.** **Listing** List the three types of symbiotic relationships.
   b. **Comparing and Contrasting** For each type of symbiotic relationship, explain how the two organisms are affected.
   c. **Applying Concepts** Some of your classroom plants are dying. Others that you planted at the same time and cared for in the same way are growing well. When you look closely at the dying plants, you see tiny mites on them. Which symbiotic relationship is likely occurring between the plants and mites? Explain.

Lab zone At-Home Activity

Feeding Frenzy You and your family can observe interactions among organisms at a bird feeder. Fill a clean, dry, 2-liter bottle with birdseed. With paper clips, attach a plastic plate to the neck of the bottle. Then hang your feeder outside where you can see it easily. Observe the feeder at different times of the day. Keep a log of all the organisms you see near it and how they interact.

Monitor Progress L2

Skills Check Call on students to name a type of symbiotic relationship and give an example.

Answers

Figure 18 The tick is the parasite; the person is the host.

Reading Checkpoint If a parasite kills its host, the parasite will no longer have a source of food.

Assess

Reviewing Key Concepts

1. a. Adaptations are the behaviors and physical characteristics that allow organisms to live successfully in their environments. **b.** The sharp fangs enable the snake to bite into its prey. **c.** Snakes with sharper fangs could capture more prey and thus be able to survive and reproduce. They pass this trait, sharp fangs, on to their offspring.
2. a. Competition, predation, and symbiosis **b.** Possible answers: Competition—Two species of birds that eat the same type of insects; predation—a snake eating a mouse; symbiosis—stinging ants nesting in an acacia tree
3. a. Mutualism, commensalism, and parasitism **b.** Mutualism—both species benefit; commensalism—one species benefits and the other is neither harmed nor helped; parasitism—one species is helped and the other species is harmed.
c. Parasitism is most likely. One species is being harmed (the plant).

Reteach L1

Use Figures 13, 14, and 18 to present information about competition, predation, and symbiosis.

Performance Assessment L2

Writing Have each student explain how each type of interaction among species described in this section affects an organism's survival.

All in One Teaching Resources

- Section Summary: *Interactions Among Living Things*
- Review and Reinforcement: *Interactions Among Living Things*
- Enrich: *Interactions Among Living Things*

Lab zone Chapter Project

Keep Students on Track All groups should graph the data they collected for plant height. Some groups may wish to create additional graphs for the numbers of leaves and buds.

Lab zone At-Home Activity

Feeding Frenzy L2 Organisms seen at the feeder will vary, but most students will see several varieties of birds. Some may also see squirrels and other small animals. Suggest that students use a bird guide to identify the birds they see.